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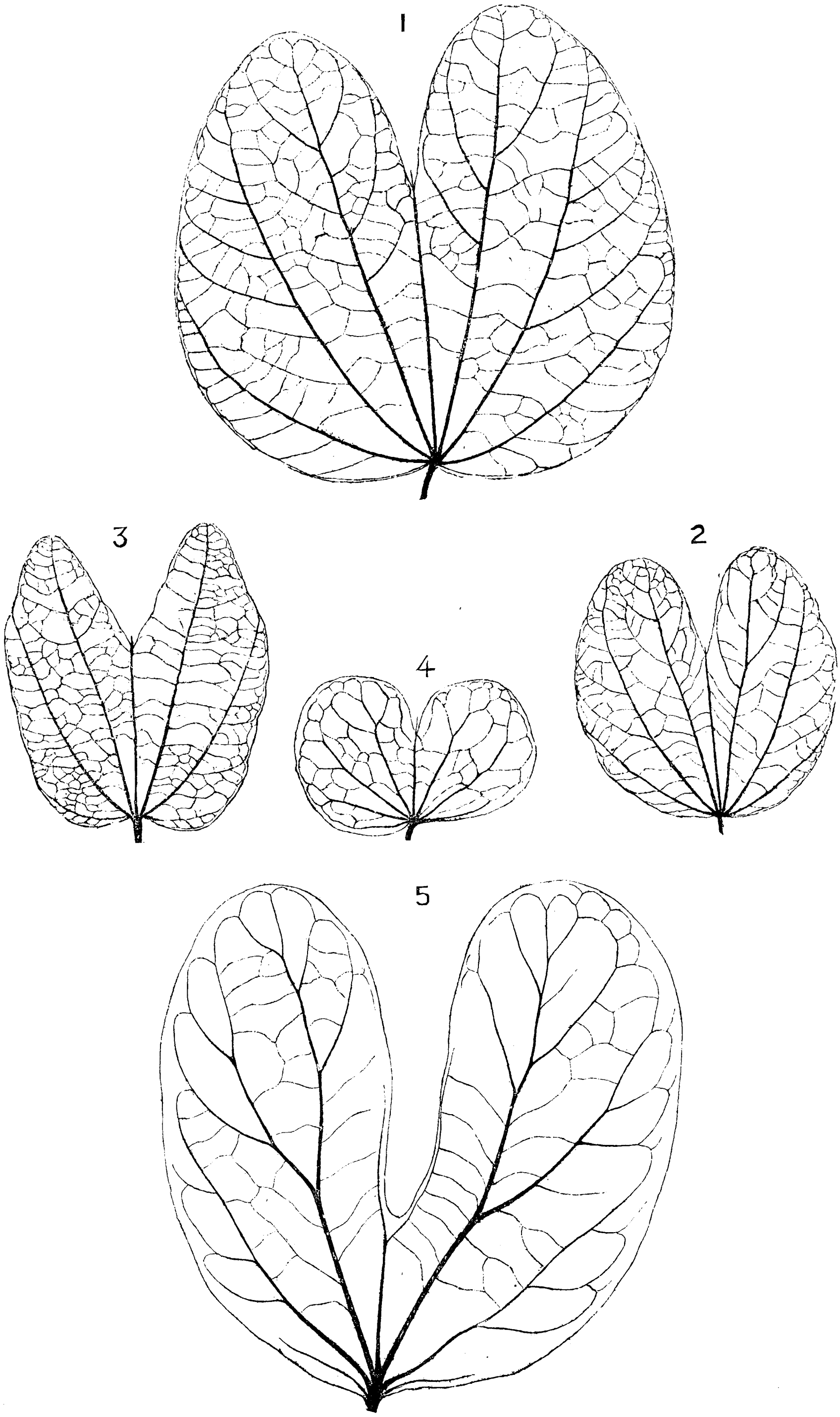
Bulletin of the Torrey Botanical Club. Plate LVI.



Bauhinias living and fossil.

Description of a Species of Bauhinia from the Cretaceous Clays of New Jersey.

By J. S. Newberry.

Bauhinia cretacea, n. sp.

Plate LVI.

Leaves large, from four to seven inches in diameter, general outline circular, deeply two-lobed, sinus reaching below the middle, margin entire, base rounded, lobes oblong or broadly spatulate; nervation strong, radiate or bilateral, midrib slender, from a half-inch to an inch and a half in length, running to bottom of mesial sinus, there forking equally, each slender branch running parallel with the margin of the sinus; lateral nerves strong, usually two, rarely one on each side springing from a common base, the interior lateral nerve strongest, forking several times and giving off fine branches, which inosculate to form a graceful festoon near the upper margin; the exterior lateral nerves, throwing off numerous branches which anastamose in loops near the margin, producing a camptodrome nervation. In those which have but a single lateral nerve, the lobes are narrower, and each is covered with the ramifications of the branches which spring chiefly from the outer side of the single main nerve.

The form and nervation of these leaves are so precisely those of some of the Bauhinias of the present flora, that there can be no reasonable doubt we here have the remains of a well marked species of this genus, which grew near the mouth of the Hudson River, in the middle of the Cretaceous age, and was the associate of the Magnolias, Tulip-trees, Aralias, etc., which composed the angiosperm forest of eastern North America. In size, some of these leaves exceed those of any living Bauhinia, and the outline and nervation indicate, that the genus was as perfectly defined and highly specialized in the Cretaceous age as now.

The living Bauhinias inhabit the tropical and subtropical regious of the Old and New World: India, Mauritius, Surinam, Cuba, Mexico, etc. The genus is closely related to *Cercis*, and most of the species have a similar habit. In a few the leaves are orbicular or slightly emarginate, but they are generally bilobed, the sinus reaching the middle of the leaf, sometimes extending to the base, as is the case with the only species inhabiting the

United States, *B. lunarioides*, Gray, of Texas and Mexico.

In most of the East India species the nervation is more crowded than in the fossil leaves before us, each nerve having three, and sometimes four lateral nerves, the medial nerve however, being quite the same. In several oriental species, and all those of the New World, the nervation is simpler, and essentially like that of the fossil. In the Texan species the leaves are generally divided to the base, and the medial nerve is therefore obsolete; the lateral nervation is, however, precisely that of our fossil. As the depth of the sinus is a variable character, differing greatly in the leaves of the same tree, it is quite possible that our *Bauhinia lunarioides* is only a dwarfed and slightly modified descendant of the Cretaceous species.

EXPLANATION OF PLATE LVI.

Figs. 1 and 2. *Bauhinia tomentosa.* India.
Fig. 3. *B. porrecta.* Cuba.
Fig. 4. *B. parvifolia.* India.
Fig. 5. *B. cretacea.* N.

Dendrological Notes.

By C. S. Sargent.

The late Mr. S. B. Buckley, many years ago published (Am. Journ. Sci., 2d Ser., Vol. xxvii., March, 1859, p. 289) an interesting account of the forests and trees of the Big Smoky Mountain region of North Carolina and Tennessee. I am glad to be able to bear witness to the accuracy of Mr. Buckley's observations recorded in this paper, which has only recently become known to me. Mr. Buckley's interesting discovery of *Quercus Leana* on the banks of the Tennessee River near Franklin, in Macon County, seems to have passed unnoticed from that day to this. His determination of this plant was doubtless correct, however, for last September I found *Q. Leana* on one of the main forks of the Tennessee—the Tuckaseego, at Charleston, in Swaine County—where a single small tree growing with *Q. imbricaria* was seen. *Quercus Leana* is now known from the neighborhood of Washington to Missouri, and has been found in several remote and isolated localities. It is probably of recent hybrid origin.